A CALVING GROUND SURVEY

OF THE

HALL PENINSULA CARIBOU HERD

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A CALVING GROUND SURVEY OF THE HALL PENINSULA CARIBOU HERD JUNE 1979

TOM CHOWNS

RICHARD POPKO

N.W.T. WILDLIFE SERVICE

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File Report No. 8

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ᕿᓂ 8, 10 ᐊᒃᓴ 14, 1979-ᒥᑎᒋᓴᐅᔪ, ᑲᖏᑕᓕᖅᑲ ᑯᑦ (ᑎᒃᓗᕕᓕᑦ) ᑐᑲ ᑐᓄᑦ ᓄᑎᐅᑦᑲᐃᐅᖏᑦ ᑕᑲᑐᓂᑦ ᖏᐅᓵᓴᓕᐅᑲᓕᒫᒃᑕ ᖃᐅᖏᑲᑕᓄᑲ ᒥ ᑕᒪᓂ ᐅᑲᑕᐊᓴᐃᑦ ᐊᒃᓕᒪᓴ ᐃᖏᓴᐃᑦ ᐅᐃᕕᖏᓂ. ᓇᓴᐃᑕᐅᑲᑐᔪᑦ 1,048ᓂᑦ ᑐᑲ ᑐᓂᑦ ᐊᒃᓕᒪᓴ 96ᓂᑦ ᓄᑦ ᕿᑲᓂᑦ.

ᑕᒪᒃ ᑯᐊ ᑐᑲ ᑐᐃᑦ ᓇᖅᓴᑲᓂᖏᑕᑲᑦᑕᐅᑲᑐᑦ ᐊᒃᒪᓴ ᐊᐳᑕᐃᑭᑲᑦᑕᓕᑕᑲᓂᖏᓂ. ᖏᐅᓵᓴᓴᒃᖯᓄᑎ-ᐊᖏᑲᓴᔪᑦ ᑐᑭᓯᓴᐳᑎᐊᖏᕿᑦᑕ ᖏᓄᑲ ᐅᖃᓕᓐᓄᖏᑦᑕᓕᒫᑦ ᓄᑦ ᑎᐅᑲᐃᖏᖅᑲᑦᑕᑲᒪᖅᑕᐃᓐ.

ABSTRACT

Survey flights were carried out on June 8, 10, and 14, 1979, on Hall Peninsula of southern Baffin Island to document the location and extent of caribou calving areas. Of 1,048 caribou observed, 96 were calves. The animals showed an affinity for valleys and places where snow was melting. Although suspected calving areas were delineated, more comprehensive work is required to verify their boundaries and determine the significance of these initial discoveries.

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INTRODUCTION

Little is known of the distribution and abundance of caribou on Baffin Island, N.W.T. Because of the huge and rugged land mass to be sampled, the general attitude of researchers, since 1972, has been to study the subpopulations separately, starting with those south of the 70th parallel where the main south Baffin herd occurs. Attempts at surveys to give total population estimates have provided little conclusive information.

Although the central Baffin calving grounds of the south Baffin herd are now fairly well documented (Clement 1978), little is known of the whereabouts or importance of other calving areas. With the exception of a brief reconnaissance by Elliott and Elliott in July 1974, Hall Peninsula had never been surveyed for caribou calving grounds. The only other survey work had been carried out in late summer and fall 1978, by Chowns, on the eastern part of the Peninsula near Brevoort Island where offshore drilling activity is to be based. At that time it became apparent that only a fringe of a population was being sampled, and that an entire population inventory as well as an identification of calving areas was necessary if critical habitat is to be protected from unnecessary human disturbance.

The June 1979 survey was conducted on south Baffin Island (Fig. 1) to determine whether part of the McKeand River plateau where Elliott and Elliott (1974) found 22 caribou, including five calves, on July 9 1974, is actually a calving area, and to discover undocumented calving areas.

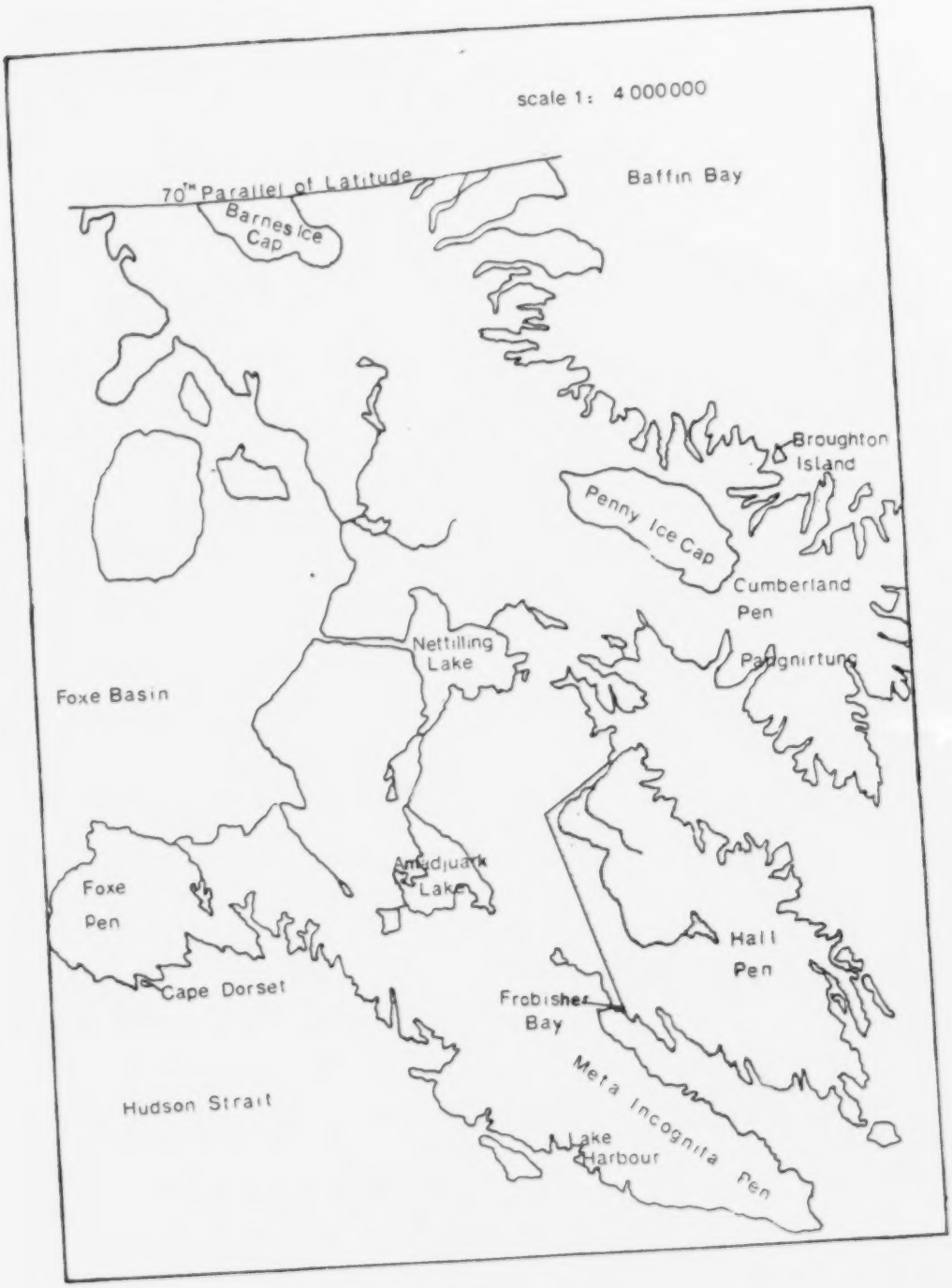

Figure 1. Southern Baffin Island showing the study area of the June 1979 survey.

METHODS

The survey which began on June 8, was intended to coincide with the peak of the calving season. It was not designed to observe pregnant cows enroute to the calving grounds, nor to estimate productivity from post-calving aggregations.

Flying was done in a DeHavilland Twin Otter, equipped with an Omega navigational device for accurately locating transects 4 kilometres apart, a radar altimeter for maintaining an altitude of 120 metres and a bulk fuel tank for extra hours of flying. The windows and wing struts were taped to delineate a 156 m (.25 mi) strip width for the observers.

Three observers were on each side of the aircraft; one to segregate calves from adults, another to photograph caribou with 100 ASA Fugicolor film and a Wildlife Officer to record data. On the right side were Ipeelie Inookee and Pauloosie Lucassie of Allen Island outpost camp, and recorder, Richard Popko. On the left side were Johnny Shoo of the Frobisher Bay Hunters' and Trappers' Association, Ben Kovic of the N.W.T. Wildlife Service and Tom Chowns as recorder.

We did not know until we started if systematic transects could be used for the entire survey to locate and estimate numbers of caribou, or whether conditions would favour reconnaissance aimed primarily at distribution.

RESULTS

June 8

Our first transect was flown from south to north over a plateau from 64° 50'N; 68° 00'W to 65°55'N; 68°00'W (Fig. 2). The land was 95-100% snow covered and no sign of caribou was observed. Two latitudinal transects then showed that the McKeand River plateau, including where Elliott and Elliott (1974) had designated a calving area, was also completely snow covered and devoid of caribou.

In the McKeand River valley where there was less than 50% snow cover, tracks along almost the entire length of the valley showed up well in melting snow under a clear sky. Twenty-seven caribou, including three calves, were counted (Table 1).

The last three longitudinal transects were primarily over land 80 to 100% snow covered. Only two caribou were seen on the northern part of these transects. However on the southerly portions which reached into the coastal lowlands of Ward Inlet, melting was well advanced and 30 adult caribou were observed. The survey was terminated at this point because of a fog bank, and we returned to Frobisher Bay.

June 10

It was apparent from the previous flight that systematic transects with a fixed strip width would not be practical at elevations greater than 450 metres where the snow had not started to melt as there was little evidence of caribou. Instead, we decided to examine the main valleys where melting had advanced. Except for low cloud around Smith Channel, visibility for most of the day was excellent.

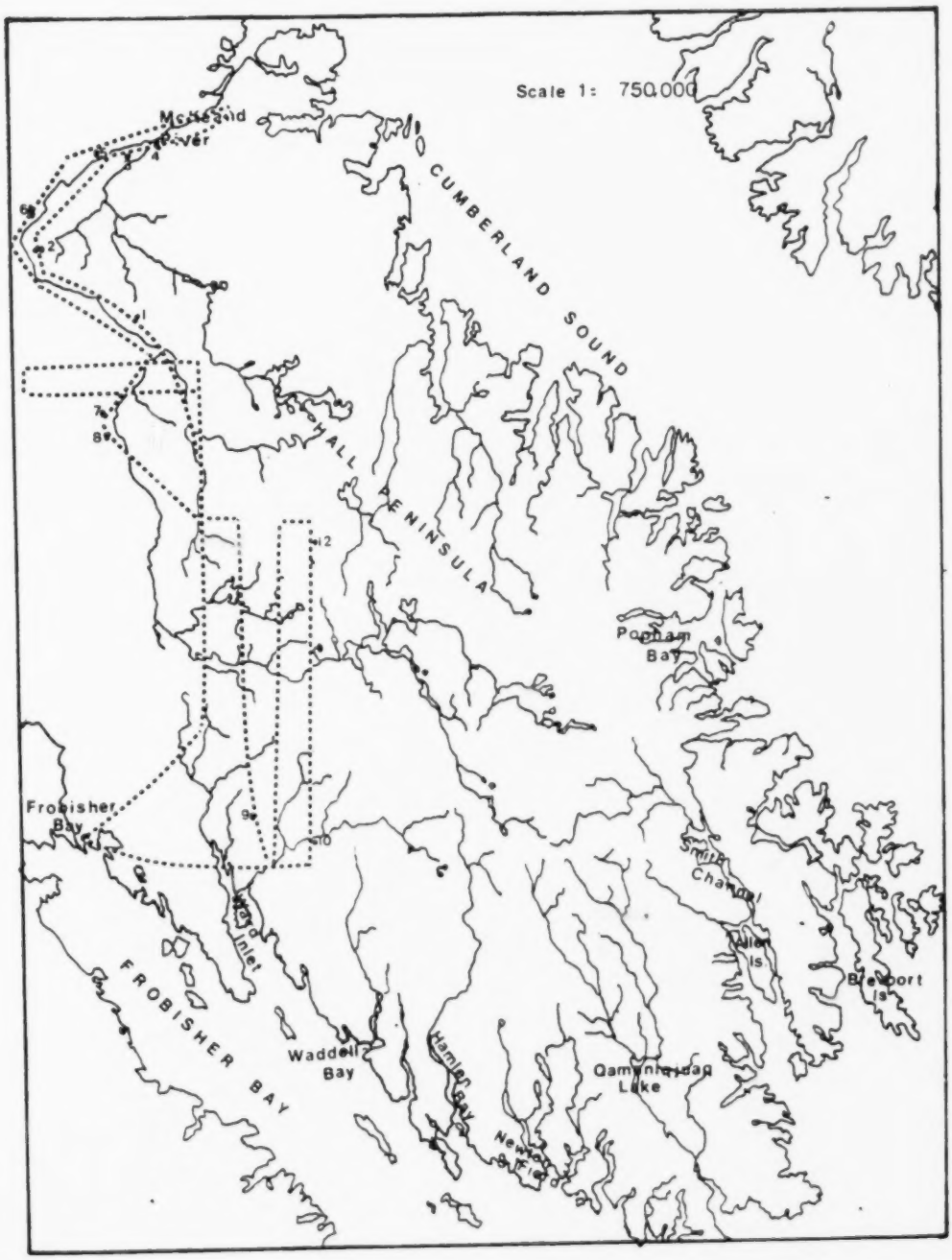

Figure 2. June 8 survey showing flight line, location points and the McKeand River Plateau calving area designated by Elliott and Elliott.

Table 1. Caribou observations - June 8, 1979 (See Fig. 2).

Location point	Left observer		Right observer		Total
	Calves	Others	Calves	Others	
01	0	1	-	-	1
02	0	6	-	-	6
03	-	-	0	2	2
04	-	-	0	1	1
05	-	-	0	5	5
06	-	-	0	3	3
07	-	-	1	1	2
08	-	-	2	5	7
09	0	7	0	2	9
10	0	16	0	5	21
11	0	1	-	-	1
12	0	1	-	-	1
Totals	0	32	3	24	59

In the valley entering Ward Inlet (Fig. 3), 47 adult caribou were tallied. We proceeded east but saw few caribou signs above the meltline.

In the valleys at the head of Smith Channel, we counted 206 caribou including 24 calves. Lack of contrast between adult caribou and the grey rock background made them hard to see.

Around Popham Bay, the topography was rugged and treacherous for much low level flying. We saw no evidence of caribou.

In the valley at the north end of Hamlen Bay, 219 caribou were observed, of which 40 were calves. Newborn calves contrasted poorly against the reddish-brown soil.

On our return to Frobisher Bay, we spotted two adult caribou in lowlands north of Ward Inlet.

June 14

A survey on June 12 to fly the main valleys on the southern part of the peninsula had been terminated at Ward Inlet because of weather. We attempted this survey again on June 14 (Fig. 4). For most of the day, cloudy conditions (ceiling broken at 900 metres) made track detection difficult.

At the heads of Waddell Bay and Newton Fiord, we saw 14 and 15 caribou respectively. There were no calves. In the largest river valley entering the northeast side of Newton Fiord, 114 caribou with three calves were tallied.

South of Qamaniqjuaq Lake, 182 caribou were observed, including nine calves. In the main valley northwest of the lake, 170 caribou were counted. Of those, 15 were calves. The reddish-brown soil was similar in colour to the calves. Along the river entering the lake from the northeast, only 12 caribou, including two calves, were observed.

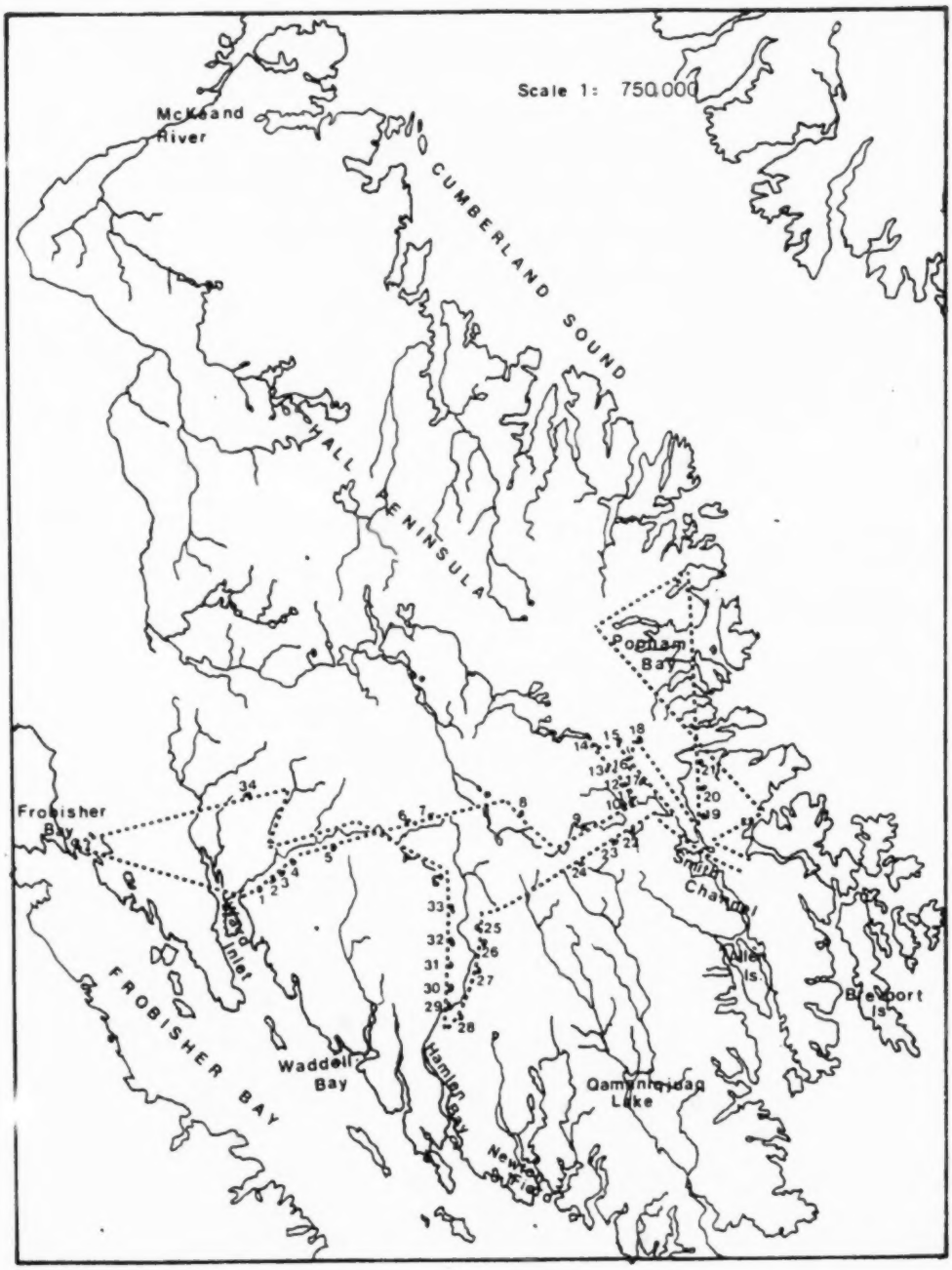

Figure 3. June 10 survey showing flight line and caribou location points.

Table 2. Caribou observations - June 10, 1979 (See Fig. 3).

Location point	Left observer		Right observer		Total
	Calves	Others	Calves	Others	
01	-	-	0	25	25
02	-	-	0	3	3
03	-	-	0	5	5
04	-	-	0	6	6
05	0	6	-	-	6
06	0	1	-	-	1
07	0	1	-	-	1
08	0	1	-	-	1
09	2	9	-	-	11
10	-	-	0	1	1
11	3	33	0	4	40
12	4	6	0	2	12
13	3	3	0	7	13
14	-	-	0	14	14
15	-	-	1	5	6
16	-	-	0	6	6
17	2	9	0	12	23

(continued overleaf)

Table 2. (con't) Caribou observations - June 10, 1979.

Location point	Left observer		Right observer		Total
	Calves	Others	Calves	Others	
18	0	2	-	-	2
19	0	5	-	-	5
20	0	1	-	-	1
21	0	4	-	-	4
22	0	10	-	-	10
23	2	5	2	13	22
24	4	21	1	9	35
25	4	16	5	18	43
26	-	4	-	11	15
27	-	-	0	11	11
28	-	-	2	7	9
29	-	-	2	3	5
30	2	19	4	8	33
31	2	11	3	17	33
32	2	7	5	17	31
33	-	-	9	30	39
34	0	2	-	-	2
Totals	30	176	34	234	474

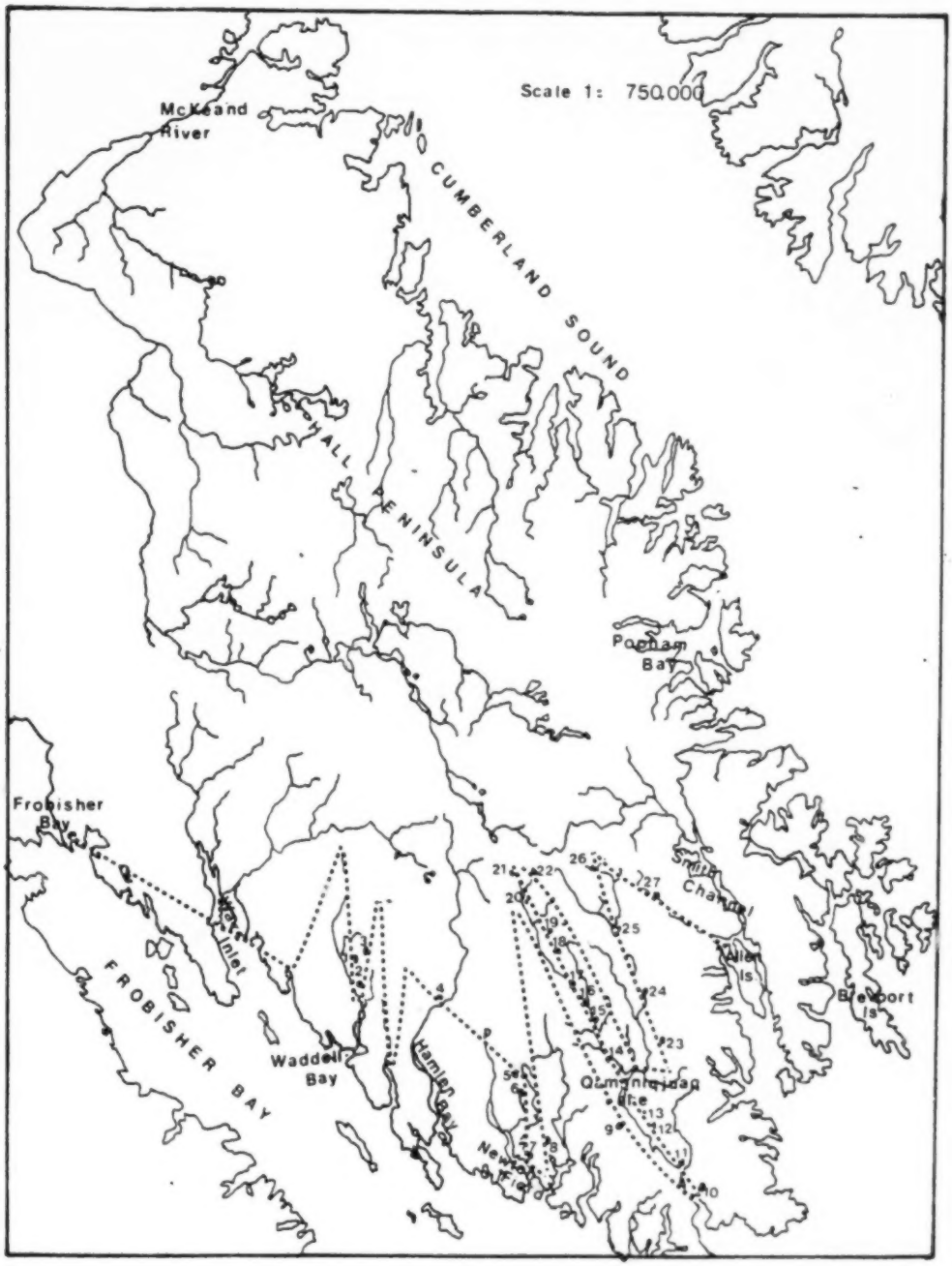

Figure 4. June 14 survey showing flight line and caribou location points.

Table 3. Caribou observations - June 14, 1979 (See Fig. 4).

Location point	Left observer		Right observer		Total
	Calves	Others	Calves	Others	
01	0	4	-	-	4
02	0	3	-	-	3
03	0	7	-	-	7
04	-	-	0	15	15
05	2	23	-	-	25
06	1	9	0	1	11
07	0	38	0	7	45
08	0	20	0	13	33
09	0	7	2	4	13
10	0	38	-	-	38
11	0	5	1	6	12
12	0	25	0	34	59
13	0	8	6	46	60
14	0	11	3	13	27
15	0	7	4	21	32
16	3	25	3	19	50
17	1	10	1	5	17

Table 3. (con't) Caribou observations - June 14, 1979.

Location point	Left observer		Right observer		Total
	Calves	Others	Calves	Others	
18	0	14	0	2	16
19	0	7	-	-	7
20	0	12	-	-	12
21	0	7	-	-	7
22	-	-	0	2	2
23	-	-	0	3	3
24	-	-	1	2	3
25	-	-	1	4	5
26	0	1	-	-	1
27	0	8	-	-	8
Totals	7	289	22	197	515

In the valley northwest of Allen Island, a herd of eight adults was spotted. From here, the two observers from Allen Island outpost camp were taken home, and the survey officially ended.

DISCUSSION

The affinity that the caribou had for the valleys at calving time this year on Hall Peninsula is similar to the findings of Elliott and Elliott in central Baffin where the greatest concentrations of cows with calves were found in the large valleys of Dewar Lakes, Flint Lake, Amaroktalik River, MacDonald River and an unnamed river. The only exception was the low flat coast of Baird Peninsula. During migration to calving areas, perhaps pregnant cows typically ascend to higher ground by following a path of least resistance and adequate forage gradually made available by melting snow. The magnitude of these migrations may be inversely related to the ruggedness of the terrain.

This survey produced little to confirm the suspected calving area reported by Elliott and Elliott (1974) on the McKeand River Plateau. Since their observations were made on July 9, 1973, they may have been looking at a post-calving aggregation which moved up on to the plateau as the snow disappeared.

Around Ward Inlet, Newton Fiord and south of Qamaniqjuaq Lake, the percentage of calves observed was quite low (Fig. 5 and Table 5). We either missed sighting all the calves, or they may have been lost or not yet born. Bulls may have been preponderant in these areas. However reliable segregation of sexes was not possible because of rugged country and susceptibility of calving females to disturbance.

Table 4. Summary of caribou observations.

Date	Left		Right		Total		Total
	Calves	Others	Calves	Others	Calves	Others	
June 8	0	32	3	24	3	56	59
June 10	30	176	34	234	64	210	474
June 14	7	289	22	197	29	486	515
Total	37	497	59	455	96	952	1,048

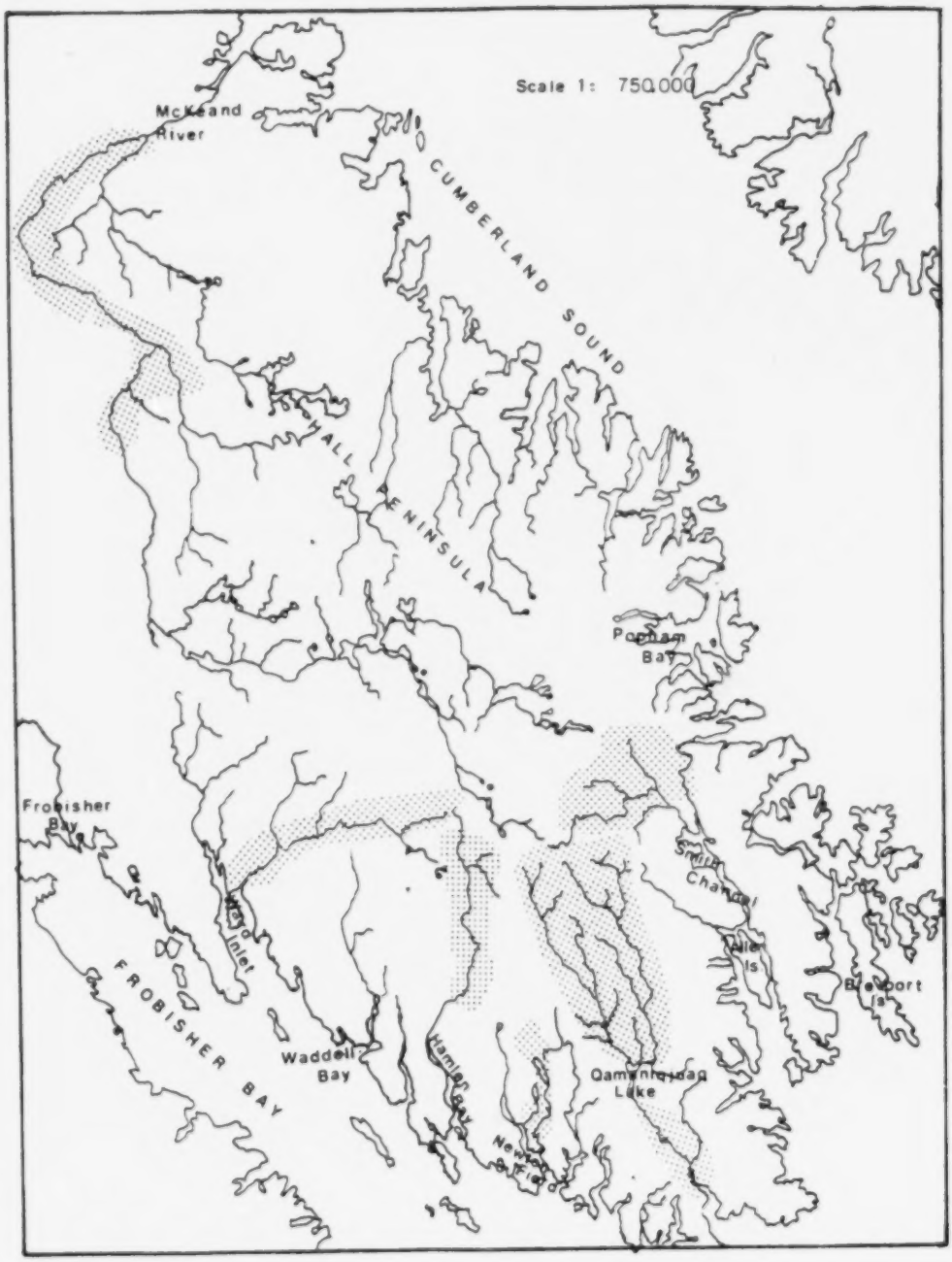

Figure 5. Suspected calving areas.

Table 5. Suspected calving areas (See Fig. 5).

Area	Calves	Adult	Total	% Calves
McKeand River	3	24	27	11.1
Northeast of Ward Inlet	0	70	70	0
North of Smith Channel	24	182	206	11.8
North of Hamlen Bay	40	179	219	18.3
East of Newton Fiord	3	111	114	2.6
South of Qamaniqjuaq	9	173	182	4.9
North of Qamaniqjuaq	17	165	182	9.4

The main calving grounds appear to be at the head of Smith Channel, in the valley north of Hamlen Bay and the Qamaniqjuaq Lake watershed. The highest numbers of calves were observed in these areas. It is interesting to note that when the head of Smith Channel was surveyed on October 16, 1978, all 243 caribou observed were below the 60.1 metre (200 ft.) contour of elevation (Chowns in prep.). Observations in the June survey show an apparent migration to higher ground.

The significance of 1,048 caribou tallied on this survey in relation to the total population of Hall Peninsula or southern Baffin Island is not known since the figure is not adjusted for areas or animals missed. We may have underestimated the number of calves because of lack of contrast between the animals and the terrain. Also, since the left side of the aircraft (pilot's side) generally had the best view of the valleys where the caribou were, animals may have been missed on the right side.

RECOMMENDATIONS

1. Future surveys are required on Hall Peninsula to verify the suspected calving areas. Their boundaries possibly fluctuate annually, depending on snow conditions.
2. Although the main calving areas were probably located, future reconnaissance to find other calving grounds should concentrate on the valleys at elevations below the meltline.
3. When seasonal movements and distribution are better understood, it will be necessary to design a survey for estimating total numbers of caribou on Hall Peninsula.
4. It is suspected that bulls predominantly occupy the coastal areas of Hall Peninsula in spring while the females calve further inland. This should be officially documented by ground surveys which would help define the boundaries of the calving areas and confirm whether those suspected calving grounds with low percentages of calves actually contain mainly bulls.
5. For photographing caribou under conditions such as we experienced, the 100 ASA film which we used is too imprecise for calf and sex segregation; 25 ASA would be better. In addition, only five of eight rolls of film were returned from the Fugi processing laboratory, the slides were out of order and only one roll had numbered slides.
6. A Twin Otter with a bulk tank, Omega, radar altimeter and space for three observers on each side is adequate for this type of survey. However if strip transect flying is not required and one observer on each side is acceptable, a smaller craft such as a Beaver with a belly tank would be cheaper, if it is available.

7. Aircraft probably fly over at least two of the suspected calving areas between Frobisher Bay and Imperial Oil's offshore drilling base at Brevoort Island. Since air traffic is expected to increase, measures should be taken to assure that maternity cows are not disturbed during the critical calving period once it is defined.
8. The annual recruitment and mortality should be thoroughly assessed on Hall Peninsula. Of prime importance is the number of females harvested by hunters from Frobisher Bay, Pangnirtung and at least four outpost camps.
9. Documentation of movements, distribution, total numbers, recruitment and mortality of other subpopulations on Baffin Island must be done before a comprehenisve management plan can be soundly implemented.

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